

EASY AXIS MAGNETIC AMPLIFIER

Abstract of the Disclosure

Techniques for improved semiconductor device performance are provided. In one
5 aspect, a semiconductor device is provided. The device comprises at least one free
magnetic layer, and a magnetic amplifier interacting with the free magnetic layer
comprising two or more magnetic layers with at least one nonmagnetic layer
therebetween. The nonmagnetic layer may be configured to provide parallel exchange
coupling J of the magnetic layers in a range of $0 < J < \frac{4\pi t^2 M_s^2 n_y}{b}$, the magnetic layers
10 having a long axis and a short axis, wherein t is a thickness of each magnetic layer, M_s is
magnetization, n_y is a demagnetizing factor defined along the short axis of the magnetic
layers and b is a diameter along a short axis of the magnetic layers. A method for
switching a semiconductor device having at least one free magnetic layer is also provided.